

FINAL
SITE HAZARD ASSESSMENT
SUMMARY REPORT
FOR
ADVANCE ELECTROPLATING
SEATTLE, WASHINGTON

JULY 1991

Prepared for

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1. INTRODUCTION

Pursuant to Basic Ordering Agreement Number 16-890056-96, Parametrix, Inc., in association with Science Applications International Corporation (SAIC), is conducting a Site Hazard Assessment (SHA) of the Advance Electroplating facility, located at 9585 Eighth Avenue South in Seattle, Washington. The purpose of the SHA process is to gather sufficient information on actual or potential environmental or public health hazards for the Washington State Department of Ecology (Ecology) to rank the facility by the Washington Ranking Method (WARM). The SHA process does not include extensive or complete site characterization, contaminant fate determination, or qualitative risk assessment.

This report provides a description of the Advance Electroplating facility and presents the results of the assessment. Included are descriptions of the site background (Section 2), objectives and scope of work (Section 3), sampling plan (Section 4), results and discussion (Section 5), and references (Section 6).

The appendices section at the end of this report includes copies of the Site Hazard Assessment Data Collection Summary Sheets (Appendix A), Certified Analytical Results and Quality Assurance of Data (Appendix B), Drilling and Monitoring Well Logs (Appendix C), Groundwater Sampling Field Data Sheets (Appendix D), results of the geophysical and monitoring well surveys (Appendix E), and results of previous sampling at the site (Appendix F).

2. BACKGROUND

2.1 SITE LOCATION AND DESCRIPTION

The Advance Electroplating facility is located at 9585 Eighth Avenue South, in an industrial area of Seattle, Washington (Figure 1 - Site Location Map). The site topography slopes slightly to the east. The Duwamish River is located approximately one mile to the east and northeast. The facility is bordered on the west by a vacant field, which formerly contained a truck farm. In recent years, this field was used to grow lettuce.

There are three main buildings onsite: the zinc plating building, the old plating shop, and the new plating line building (Figure 2 - Site Map). The zinc plating building contains the zinc plating area, a stripping area, and a boiler area. The old plating shop contains a chrome plating area, a storage and inspection area, a polish area, a 1,1,1-TCE storage area, and the main office. The new plating line building contains several plating tanks and a waste storage area. Along the west portion of the property is a boiler room and four aboveground storage tanks. These tanks contain chrome waste, acid waste, caustic waste, and electroplating sludge precipitate. All plating areas and tanks are surrounded by concrete berms.

Ecology files indicate there is a groundwater monitoring well in the vicinity of Eighth Avenue South and South 96th Street. The exact location of this groundwater monitoring well has not been confirmed.

2.2 SITE OPERATIONS AND WASTE CHARACTERISTICS

Advance Electroplating has operated at its current location since 1964. In a 1964 application to the Water Pollution Control Commission for a Waste Discharge Permit, Advance Electroplating stated spent tank contents were discharged to a "neutralization pit" for treatment.

A Waste Discharge Permit authorizing the discharge of waste streams to surface waters was issued to Advance Electroplating in 1965. The permit specified "spoiled batches of chemicals . . . must be ponded or lagooned for neutralization" and "dip tank chemicals are to be disposed of on land."

In 1969, operations at the facility primarily involved the plating of Kenworth truck parts, auto bumpers, aircraft, and miscellaneous parts. Sludges removed from treatment tanks were reportedly buried or sent to the dump.

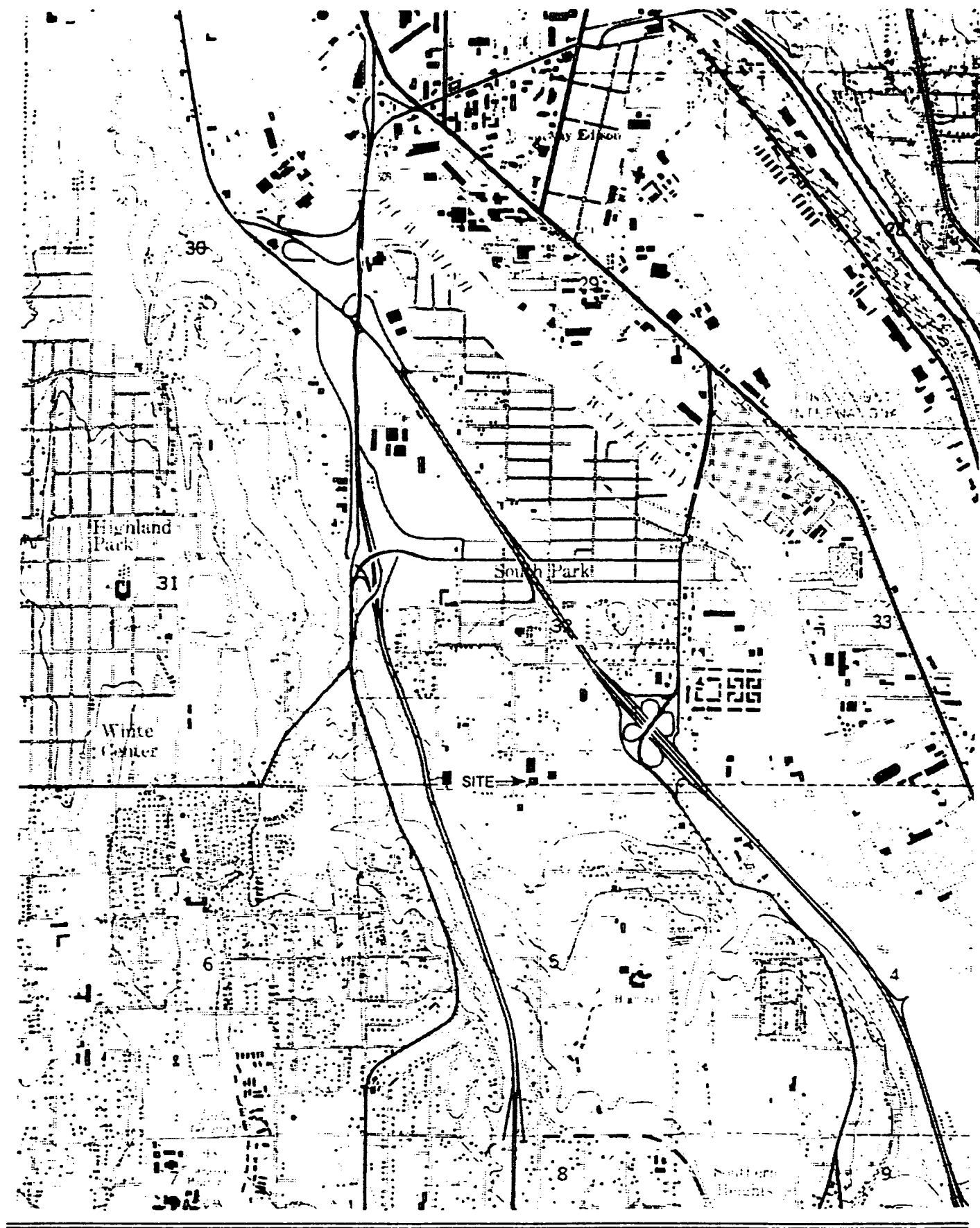
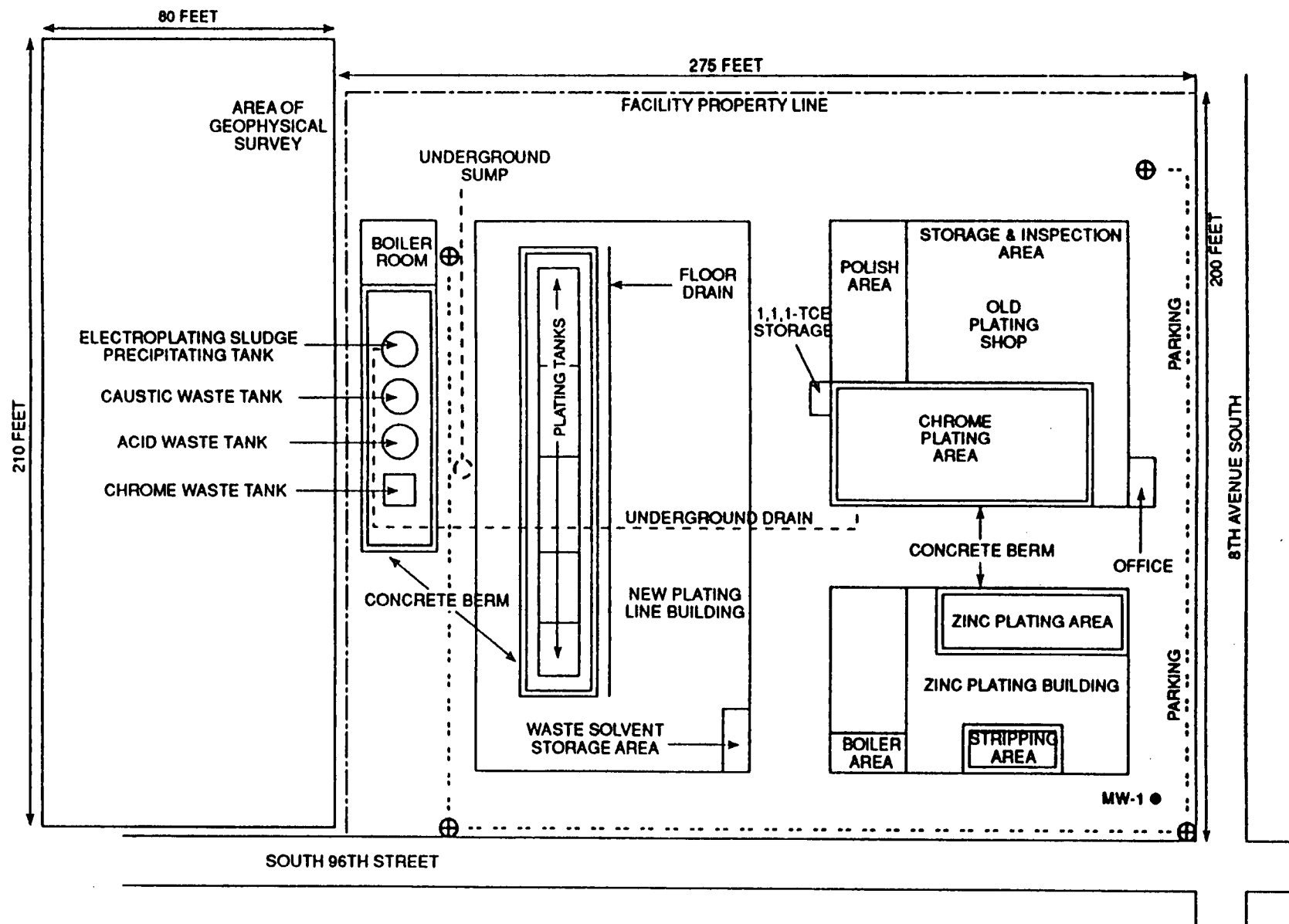


Figure 1.
Site Location Map
Advance Electroplating, Inc.
9585 8th Avenue South
Seattle, Washington

SCALE IN FEET
0 1,000 2,000





NOT TO SCALE

--- Storm Drain

⊕ Catchment Basin

○ Proposed Monitoring Well

Figure 2.
Site Map,
Advance Electroplating, Inc.
Seattle, Washington

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Hazardous waste disposal records for Advance Electroplating prior to 1972 are not available. Company officials report 100 to 150 55-gallon drums were removed from the site each year to an unknown location in eastern Washington by an unidentified waste hauler.

From 1972 through 1981, hazardous wastes generated by the facility were disposed at the Western Processing site in Kent, Washington. Materials transported to this facility included zinc and copper cyanide wastes, waste chromic acid, and spent nickel strip.

The facility's Waste Discharge Permit was replaced by a National Pollutant Elimination System (NPDES) permit in the 1970s. By 1974, Advance Electroplating was the primary job shop for Kenworth Truck Manufacturing. Rinse water and paint stripper tanks were allowed to overflow to the storm sewer system at this time.

A number of wastewater treatment systems were installed at the site in 1976. These included Culligan Company ion exchange systems used on:

- Second rinses from the chrome plating, zinc plating, and bichromate bright dip tanks,
- A cyanide destruction unit where cyanide was reportedly destroyed by chlorination, and the sludge filtered, dried and ultimately diluted and released with the total plant effluent, and
- Copper and chromium precipitation followed by settling for sludge removal.

Three underground settling tanks and several "flat bed filters" for sludge filtering and drying were also installed at the site. In addition, the facility eliminated its cadmium plating operation in 1976.

Ecology NPDES sampling activities in 1976, 1977, 1978, and 1981 identified discharges of lead, chromium, cadmium, copper, nickel, zinc, cyanide, and pH in violation of permitted limits.

In 1977, two Advance Electroplating employees reported the company had been burying drums of sludges along the western edge of the property for approximately 6 to 8 months. Additionally, these employees reported hazardous wastes were mixed with sawdust and placed into a dumpster for disposal. The employees were on strike and locked out of the facility at the time of the report. It is not known whether the report was confirmed.

In 1978, Advance Electroplating officials requested Ecology allow the disposal of sludges from their zinc plating operations in a landfill adjacent to a nearby cement plant. It is not known whether these activities occurred.

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In the late 1970s, Advance Electroplating began negotiations with Metro to allow hook-up to the sanitary sewer system. Metro conducted sampling of their effluent discharge to the storm sewer system and found elevated concentrations of nickel, zinc, and copper (above NPDES permit limitations), and pH levels as low as 4.1. However, an Industrial Waste Discharge Permit was issued by Metro in 1981 and the company was connected to the sanitary sewer system. The company's NPDES permit was canceled in 1982.

Advance Electroplating submitted two Notification of Dangerous Waste Activity forms in 1982. The company listed 7,200 pounds of electroplating sludge, 1,540 pounds of spent methylene chloride, 400 pounds of sludge from electroplating wastewater treatment activities, and 80 pounds of sludge from trichloroethane recovery as wastes to be generated annually by the facility. In 1983, the company generated 14,500 pounds of dewatered electroplating sludges.

Metro sampling of the industrial waste discharge from Advance Electroplating in 1982 through 1984 identified concentrations of lead, chromium, copper, nickel, and zinc above permitted discharge limits. In 1984, the company failed to notify Metro of a hazardous spill to the sewer system, and was assessed an \$800 penalty by Metro.

A 1984 Metro inspection of the facility identified an outdoor storage and processing area in an unpaved section of the site. Tanks and containers identified in this area included trichloroethane and fuel storage tanks, chromium and sludge boil down tanks, caustic cleaning tanks, and assorted drums. Processing and effluent transfer lines were also situated in the area. A number of these lines may have been buried. In addition, a number of floor sumps were located in the area. The sumps were subject to rainwater intrusion. Inside the facility, sludges were noted on the plating floor, in a trench area, and in a floor sump. Metro issued a compliance order to the facility as a follow-up to this inspection.

During onsite sewer expansion activities in 1984, a strong solvent odor was noted during soil excavation along the west side of the new plating building. The odor was strongest at the 3 to 4 foot depth.

In 1985, a fire occurred in the new plating building. An estimated 6,750 gallons of chromic acid waste water was generated by the fire-fighting effort. This wastewater was hauled offsite by Georgia Pacific to an unknown destination.

In 1985, a revised Notification of Dangerous Waste Activity form was filed by Advance Electroplating. The form listed 21,000 pounds of electroplating wastewater treatment sludge, 10,765 pounds of sludge from 1,1,1-trichloroethane recovery, and 4,500 pounds of spent chromium plating bath as wastes generated annually by the facility.

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The U.S. Environmental Protection Agency (EPA) conducted a preliminary assessment of the Advance Electroplating site in 1985. The assessment was followed by a joint EPA/Ecology inspection in 1986. The annual wastes generated by the facility were found to include 16 drums of solid material and 100,000 pounds of sludge which were hauled to Arlington, Oregon by Northwest Enviroservice; 50,000 pounds of waste chromic acid solution, transported by Georgia Pacific to an unknown location; and 5,000 pounds of waste 1,1,1-trichloroethane, recycled by Baron-Blakeslee.

In 1986, Metro conducted an inspection to investigate facility compliance with their compliance order of 1984. The inspection revealed a batch treatment system had been installed at the site. In addition, the previously unpaved outdoor storage and process area had been paved and fenced. The six treatment tanks had also been roofed and bermed and a roof had been placed over the facility's empty drum storage area.

A 1987 Ecology inspection of the site identified a number of problems at the facility, including:

- A broken berm surrounding the zinc plating area,
- Drainage from an onsite dumpster to the storm sewer system,
- Disposal of sawdust containing an unknown chemical in the dumpster, and
- Problems with the tracking of hazardous waste disposal activities.

Ecology followed up the inspection with a warning letter requesting the repair of the broken berm, EP toxicity testing of the disposed sawdust material, and placement of a berm around the dumpster. These activities were completed shortly thereafter. The EP toxicity test run on the sawdust identified copper/nickel/zinc concentrations above 5 parts per million (ppm). Ecology therefore requested fish bioassay test be run on the sawdust. It is not known whether this test was completed.

In 1988, electroplating wastewater treatment sludges generated by Advance Electroplating were recycled by the World Resources Company of McLean, Virginia.

In 1989, the company again submitted a revised Notification of Dangerous Waste Activity form. Hazardous wastes annually generated by the facility were listed as including 4,000 pounds of 1,1,1-trichloroethane and 32,000 pounds of electroplating wastewater treatment sludges. In 1989, Metro issued an informal compliance schedule against Advance Electroplating for exceeding permitted copper and nickel discharge limitations.

Previous sampling results collected at the facility are shown in Appendix F.

3. PROJECT OBJECTIVES AND SCOPE

The specific objective of the work performed at the Advance Electroplating facility was to gather sufficient environmental data to enable the site to be scored by WARM. A subsurface soil and groundwater investigation was conducted in conjunction with three other SHAs in the study area to determine direction of groundwater flow and impacts to groundwater from the facility.

Parametrix developed a work plan for investigating the Advance Electroplating site based upon Ecology's scope of work, a review of Ecology's file, a site visit, and conversations with Ecology. To accomplish the objectives stated in the site work plan, Parametrix performed the following tasks:

- Directed the installation and development of a groundwater monitoring well located down-gradient from the Advance Electroplating facility. This well (designated as MW-01) is located near the northwest corner of South 96th Street and Eighth Avenue South on Advance Electroplating's property.
- Collected four subsurface soil samples (including a duplicate) during drilling of the well. Each sample was sent to Century Testing Laboratories of Bend, Oregon for analysis.
- Collected groundwater samples from the well. The samples were also sent to Century Testing Laboratories for analysis.
- Performed a geophysical survey, in conjunction with SAIC, in the vacant field located west of the facility. Two geophysical methods were employed: an electromagnetic survey and a gradiometer survey. The purpose of these surveys was to attempt to locate drums which were reportedly buried there during 1977.

Information needed to complete the summary sheets was obtained from site visits, field sampling, the geophysical survey, the WARM Scoring Manual, and data from regulatory agencies. The completed summary sheets are provided in Appendix A.

Several of the objectives stated in the original work plan could not be completed due to the following:

- Two of the SHAs in the vicinity of Advance Electroplating could not be completed due to access difficulties, and therefore, it was not possible to

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determine the direction of groundwater flow in the area.

- **The excavation portion of the geophysical survey was not conducted due to contractual problems with SAIC's subcontractor. It is our understanding this activity may be undertaken in the future.**

5. RESULTS

A summary of the analytical results are presented in Tables 3 and 4 and are discussed below.

Soil Samples

Volatile organic compounds (VOCs) were detected in two samples submitted with concentrations ranging up to 71 ug/kg (trichloroethene, MW-01-9.5). VOCs were not detected in samples MW-01-6.5 and MW-01-9.5-1.

Heavy metal concentrations were detected in all samples submitted for analysis except for lead in MW-01-9.5. Detectable metal concentrations ranged from 0.02 mg/kg (mercury, MW-01-9.5-1) to 504 mg/kg (zinc, MW-01-3.5).

Cyanide concentrations ranged up to 0.462 mg/kg in shallow samples and were undetected in the two deep samples. The pH values decreased with depth with values ranging from 6.4 to 5.7.

Groundwater Samples

Nine VOCs were detected in the groundwater sample collected from MW-01 with concentrations ranging up to 1500 ug/L (trichloroethene). All heavy metals analyzed for were detected in the groundwater sample except for mercury. Zinc was detected in the highest concentration in both total and dissolved analyses with concentrations of 64.6 mg/L and 57.1 mg/L, respectively. Cyanide was detected at a concentration of 0.053 mg/L. The pH measurements taken in the field during purging and sampling ranged from 4.18 to 5.00.

Geophysical Survey

Preliminary results of the geophysical survey indicated the presence of anomalies in the western portion of the area ranging from 10 feet wide to 150 feet long. Subsequent excavation activities to determine the nature of the anomalies was canceled as discussed in Section 3.0, and the source of the anomalies is yet to be determined.

Table 1. Soil Sample Analytical Data, Advance Electroplating Facility, Seattle

Analyte	Units	Sample Number			
		MW-01	MW-01	MW-01	MW-01 ¹
Volatile Organics ²		-3.5	-6.5	-9.5	-9.5-1
Chloromethane	ug/kg	<10	<10	<10	<10
Bromomethane	ug/kg	<10	<10	<10	<10
Vinyl Chloride	ug/kg	<10	<10	<10	<10
Chloroethane	ug/kg	<10	<10	<10	<10
Methylene Chloride	ug/kg	<5	<5	<5	<5
Acetone	ug/kg	28	<10	<10	<10
Carbon Disulfide	ug/kg	<5	<5	<5	<5
1,1-Dichloroethene	ug/kg	<5	<5	<5	<5
1,1-Dichloroethane	ug/kg	<5	<5	<5	<5
1,2-Dichloroethene	ug/kg	<5	<5	<5	<5
Chloroform	ug/kg	<5	<5	<5	<5
1,2-Dichloroethane	ug/kg	<5	<5	<5	<5
2-Butanone	ug/kg	<10	<10	<10	<10
1,1,1-Trichloroethane	ug/kg	<5	<5	<5	<5
Carbon Tetrachloride	ug/kg	<5	<5	<5	<5
Vinyl Acetate	ug/kg	<10	<10	<10	<10
Bromodichloromethane	ug/kg	<5	<5	<5	<5
1,2-Dichloropropane	ug/kg	<5	<5	<5	<5
Cis-1,3-Dichloropropene	ug/kg	<5	<5	<5	<5
Trichloroethene	ug/kg	11	<5	71	<5
Dibromochloromethane	ug/kg	<5	<5	<5	<5
1,1,2-Trichloroethane	ug/kg	<5	<5	<5	<5
Benzene	ug/kg	<5	<5	<5	<5
Trans-1,3-Dichloropropene	ug/kg	<5	<5	<5	<5
Bromoform	ug/kg	<5	<5	<5	<5
4-Methyl-2-Pentanone	ug/kg	<10	<10	<10	<10
2-Hexanone	ug/kg	<10	<10	<10	<10
Tetrachloroethene	ug/kg	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	ug/kg	<5	<5	<5	<5
Toluene	ug/kg	11	<5	<5	<5

Table 1. Soil Sample Analytical Data, Advance Electroplating Facility, Seattle (Continued)

<u>Analyte</u>	<u>Units</u>	<u>Sample Number</u>			
		MW-01 -3.5	MW-01 -6.5	MW-01 -9.5	MW-01 ¹ -9.5-1
Chlorobenzene	ug/kg	<5	<5	<5	<5
Ethylbenzene	ug/kg	<5	<5	<5	<5
Styrene	ug/kg	<5	<5	<5	<5
Xylenes (total)	ug/kg	<5	<5	<5	<5
Metals³					
Arsenic	mg/kg	25	15.6	10.8	12.8
Cadmium	mg/kg	0.50	0.40	0.90	0.30
Chromium	mg/kg	127	64.0	69.4	72.0
Copper	mg/kg	147	14.9	11.1	13.2
Lead	mg/kg	58.9	3.3	<0.90	7.7
Mercury	mg/kg	0.19	0.04	0.03	0.02
Nickel	mg/kg	109	43.0	88.3	53.0
Zinc	mg/kg	504	98.7	179	87.8
Cyanide ⁴	mg/kg	0.363	0.462	<0.3	<0.3
pH ⁵	NA	6.4	5.9	5.7	5.7
% Moisture ⁶	percent	17.25	13.51	14.18	13.08

All samples were collected on May 9, 1991.

- 1 Duplicate sample (with MW-01-9.5)
- 2 Volatile organics analyzed by EPA Method 8240.
- 3 Metals analyzed by EPA 7000 Series.
- 4 Cyanide analyzed by EPA Method 9012.
- 5 pH analyzed by EPA Method 150.1.
- 6 Moisture analyzed by ASTM Method D-2216.

Table 2. Groundwater Sample Analytical Data, Advance Electroplating Facility, Seattle

<u>Analyte</u>	<u>Units</u>	<u>Sample Number</u>
Volatile Organics ¹		MW-01-1
Chloromethane	ug/l	<10
Bromomethane	ug/l	<10
Vinyl Chloride	ug/l	<10
Chloroethane	ug/l	<10
Methylene Chloride	ug/l	<5
Acetone	ug/l	74
Carbon Disulfide	ug/l	<5
1,1-Dichloroethene	ug/l	35
1,1-Dichloroethane	ug/l	8
1,2-Dichloroethene	ug/l	38
Chloroform	ug/l	<5
1,2-Dichloroethane	ug/l	<5
2-Butanone	ug/l	23
1,1,1-Trichloroethane	ug/l	330
Carbon Tetrachloride	ug/l	<5
Vinyl Acetate	ug/l	<10
Bromodichloromethane	ug/l	<5
1,2-Dichloropropane	ug/l	<5
Cis-1,3-Dichloropropene	ug/l	<5
Trichloroethene	ug/l	1500
Dibromochloromethane	ug/l	<5
1,1,2-Trichloroethane	ug/l	<5
Benzene	ug/l	<5
Trans-1,3-Dichloropropene	ug/l	<5
Bromoform	ug/l	<5
4-Methyl-2-Pentanone	ug/l	<10
2-Hexanone	ug/l	<10
Tetrachloroethene	ug/l	300
1,1,2,2-Tetrachloroethane	ug/l	<5
Toluene	ug/l	7
Chlorobenzene	ug/l	<5
Ethylbenzene	ug/l	<5
Styrene	ug/l	<5
Xylenes (total)	ug/l	<5

Table 2. Groundwater Sample Analytical Data, Advance Electroplating Facility, Seattle (Continued)

<u>Analyte</u>	<u>Units</u>	<u>Sample Number</u>
Total Metals ²		MW-01-1
Arsenic	mg/l	0.046
Cadmium	mg/l	0.358
Chromium	mg/l	5.59
Copper	mg/l	7.38
Lead	mg/l	0.003
Mercury	mg/l	<0.0009
Nickel	mg/l	21.1
Zinc	mg/l	64.6
Dissolved Metals		
Arsenic	mg/l	0.022
Cadmium	mg/l	0.327
Chromium	mg/l	5.32
Copper	mg/l	6.42
Lead	mg/l	0.003
Mercury	mg/l	<0.0009
Nickel	mg/l	21.6
Zinc	mg/l	57.1
Cyanide ³	mg/l	0.053
pH	NA	4.18 - 5.00
Conductivity	umhos/cm	1865 - 7720
Temperature	°F	56.3 - 57.0

Volatile organics and cyanide samples were collected on May 13, 1991; total and dissolved samples were collected on May 14, 1991.

- 1 Volatile organics analyzed by EPA Method 624/8240.
- 2 Total and dissolved metals analyzed by EPA 7000 Series.
- 3 Cyanide analyzed by EPA Method 9012.

6. DISCUSSION

Results of the sampling program indicate the groundwater samples submitted for analysis contained detectable levels of volatile organic compounds, cyanide, and heavy metals. The volatile organic compounds include: acetone, 1,1-dichloroethene, 1,1-dichloroethane, 1,2-dichloroethene, 2-butanone, 1,1,1-trichloroethane, trichloroethene, tetrachloroethene, and toluene. The metals present in the groundwater include: arsenic, cadmium, chromium, copper, lead, nickel, and zinc.

Results of the soil sampling program indicated detectable levels of volatile organic compounds, cyanide, and heavy metals were present. The volatile organic compounds include: acetone, toluene, and trichloroethene. The metals detected in the soil include: arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc. In general, the concentrations in the soil decreased with depth.

Results of the geophysical survey indicate the presence of a large anomaly in the western portion of the gridded area. This anomaly is approximately 150 feet long, from 5 to 15 feet wide, and dog-legged in shape. The anomaly is oriented in a north-south direction and is located approximately 60 feet west of the chain link fence, and 50 feet north of 96th Street. It is possible this anomaly may be the remains of a former irrigation system. According to Mr. Boyd Coleman of Advance Electroplating, several hollowed-out logs covered with fence wire were placed throughout the area for irrigation purposes.

APPENDIX C
DRILLING AND MONITORING WELL LOGS

Unified Soil Classification System

Compiled by E. W. Pipkin, University of Southern California

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES		
COARSE-GRAINED SOILS More than half of material is larger than no. 200 sieve size.	GRAVELS More than half of coarse fraction is larger than no. 4 sieve size.	Clean gravel	GW	Well-graded gravels, gravel-sand mixtures, little or no fines.		
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines.		
		Gravel with fines	GM	Silty gravels, gravel-sand-silt mixtures.		
			GC	Clayey gravels, gravel-sand-clay mixtures.		
	SANDS More than half of coarse fraction is smaller than no. 4 sieve size.	Clean sands	SW	Well-graded sands, gravelly sands, little or no fines.		
			SP	Poorly graded sands, gravelly sands, little or no fines.		
		Sands with fines	SM	Silty sands, sand-silt mixtures.		
			SC	Clayey sands, sand-clay mixtures.		
			FINE-GRAINED SOILS More than half of material is smaller than no. 200 sieve size.	Low Liquid Limit	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts, with slight plasticity.
					CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
OL	Organic silts and organic silty clays of low plasticity.					
High Liquid Limit	MH	Inorganic silts, micaceous or clayey fine sandy or silty soils, elastic silts.				
	CH	Inorganic clays of high plasticity, fat clays.				
	OH	Organic clays of medium to high plasticity, organic silts.				
	Highly organic soils			PT	Peat and other highly organic silts.	

Method of Soil Classification
taken from the American
Geological Institute (AGI)
Data Sheets, 1982.

Exploratory Boring Log

Boring #: MW-1
 Total Depth: 15.0
 Sheet 1 of 1

Location: <u>SEATTLE, WA</u> <div style="text-align: center;"> </div> Surface Elevation: <u>30.34' (msl)</u> Datum: <u>Top PVC ELEVATION 30.10' (msl)</u> Hole Diameter: <u>6"</u>	Project #: <u>55-1738-23</u> Project Name: <u>ADVANCE ELECTROPLATING</u> Location: <u>SEATTLE, WASHINGTON</u> PMX Rep: <u>BRUCE WILLIAMS</u> Sampling Method: <u>18" SPLIT SPOON</u> Date Started: <u>5/9/91</u> Date Completed: <u>5/9/91</u> Driller: <u>JOHN MATHES CO.</u> Drilling Method: <u>HOLLOW STEM</u> Drill Rig: <u>CME 75</u>																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Water Level</td> <td style="width: 20%;">9.21</td> <td style="width: 20%;">6.81</td> <td style="width: 20%;">6.82</td> <td style="width: 20%;"></td> <td style="width: 20%;"></td> </tr> <tr> <td>Time</td> <td>1230</td> <td>1437</td> <td>1300</td> <td></td> <td></td> </tr> <tr> <td>Date</td> <td>5/9/91</td> <td>5/13/91</td> <td>5/14/91</td> <td></td> <td></td> </tr> </table>		Water Level	9.21	6.81	6.82			Time	1230	1437	1300			Date	5/9/91	5/13/91	5/14/91		
Water Level	9.21	6.81	6.82																
Time	1230	1437	1300																
Date	5/9/91	5/13/91	5/14/91																
Well Installation: <u>SEE ATTACHED MONITORING WELL FIELD</u> Date: <u>INSTALLATION LOG</u>																			

INSTRUMENT READING (PPM)	BLOWS/FT	SAMPLE TYPE AND NUMBER	% RECOVERY	DEPTH (FT)	SAMPLE INTERVAL	USCS SOIL GROUP	DESCRIPTION	WELL DETAIL
							SOIL: Soil type; color; % and plasticity of fines; % of coarse; % of oversize; consistency or compaction; water content; misc.	
							ROCK: Rock type; color; mineralogy, textural, structural features; physical condition (fracturing, hardness, weathering); water content; misc.	
1.7	4		0	1		CL	0'-0.5' - ASPHALT	
0	8		50				0.5'-2.0' - CLAY, VERY DARK GRAY (2.5 Y 3/6), MEDIUM PLASTICITY (75%); COARSE GRAINED SAND (15%); SILT, BLACK (5%); FIRM, LOOSELY PACKED, DRY, < 5% WOOD CHIPS. NO ODOR	
0	12		100	2			2.0'-3.5' - SAND, FINE TO MEDIUM GRAINED, BROWN (7.5 YR 3/3) (60%); SILT, VERY FINE, HIGHLY PLASTIC (40%);	
1.5	3		0			SM	VERY LOOSELY PACKED; MOIST. NO ODOR	
0	4		100	3			3.5'-5.0' - SAND, FINE TO MEDIUM GRAINED (90%), VERY DARK GRAYISH-BROWN (2.5 Y 3/2), SOME SILT (10%), MEDIUM PLASTICITY; VERY LOOSELY PACKED; MOIST. NO ODOR	
0	3	MW-1 - 3.5'	100				5.0'-6.5' - SAND, FINE TO MEDIUM GRAINED (90%), VERY DARK GRAYISH-BROWN (2.5 Y 3/2), SOME SILT (10%), MEDIUM PLASTIC, VERY LOOSELY PACKED, MOIST. NO ODOR.	
0	3		0	4			6.5'-8.0' - SAND, FINE TO MEDIUM GRAINED (90%), VERY DARK GRAYISH-BROWN (2.5 Y 3/2), SOME SILT (10%), LOW PLASTICITY, LOOSELY PACKED, VERY MOIST. NO ODOR.	
0	3		50			SW	8.0'-9.5' - SAND, FINE TO MEDIUM GRAINED (100%), DARK OLIVE BROWN (2.5 Y 3/3), NO PLASTICITY, LOOSELY PACKED, WET. NO ODOR	
0	3		100	5				
0	3		100	6				
60	3		100					
80	3	MW-1 - 6.5'	100	7				
0	5		0					
0	6		75	8				
0	11		100					
0	6		50	9				
0	7		100					
0	7	MW-1 - 9.5'	100	10				
				11				
0	4		50					
0	11		100	12			11.0'-12.5' - SAND, FINE GRAINED (100%), DARK OLIVE BROWN (2.5 Y 3/3), NO PLASTICITY, LOOSELY PACKED, WET. NO ODOR	
0	14		100					
				13				
0	4		100	14			13.5' - 15.0' - SAND, FINE GRAINED (100%), DARK OLIVE BROWN (2.5 Y 3/3), NO PLASTICITY, LOOSELY PACKED, WET. NO ODOR	
0	6		100					
0	10		100	15				

Monitoring Well Field Installation Log

PROJECT NAME: ADVANCE ELECTROPLATING
 PROJECT NO.: 55-1738-23
 PMX REP: BRUCE WILLIAMS
 DRILL CONTRACTOR: JOHN MATHES & ASSOC., INC.
 DRILLER: JOHN DOLAN
 DRILLING METHOD: HOLLOW STEM AUGER
 SAMPLING METHOD: 18" SPLIT SPOON
 DATE COMPLETED: 5/9/91

MONITORING WELL NO.: MW-1
 LOCATION: NE 14 NW 1/4 SEC 5 T23N R 4E
 START CARD NO.: _____

WATER DEPTH	<u>6.81'</u>
TIME	<u>1437</u>
DATE	<u>5/13/91</u>
DATUM	<u>TOP OF PVC CASING (North Sec)</u>
DATUM ELEV.	
GROUND ELEV.	

	DEPTH INTERVAL	APPROXIMATE GEOLOGIC LOG (NOT TO SCALE)
Surface Completion/ Stick up Length: <u>-0.4'</u>		0'
Type of Seal : <u>CEMENT</u>		1.0'
Diameter of Boring : <u>6"</u>		
Casing Material/Schedule: <u>SCHEDULE 40 PVC</u> Casing Diameter: <u>2"</u> Joint Type: <u>THREADED</u>		
Annular Seal Material : <u>BENTONITE PELLETS</u>		
Artificial Sand Pack : <u>10-20 COLORADO SILICA</u>		3.0'
		4.0'
Well Screen/Schedule: <u>SCHEDULE 40 PVC</u> Well Screen Diameter : <u>2</u>		14.0'
Well Screen Slot Size : <u>0.010</u>		14.5'
Sump Length : <u>0.5'</u>		15.0'

Remarks: TOP OF PVC IS SET APPROXIMATELY 0.4' BELOW GROUND SURFACE

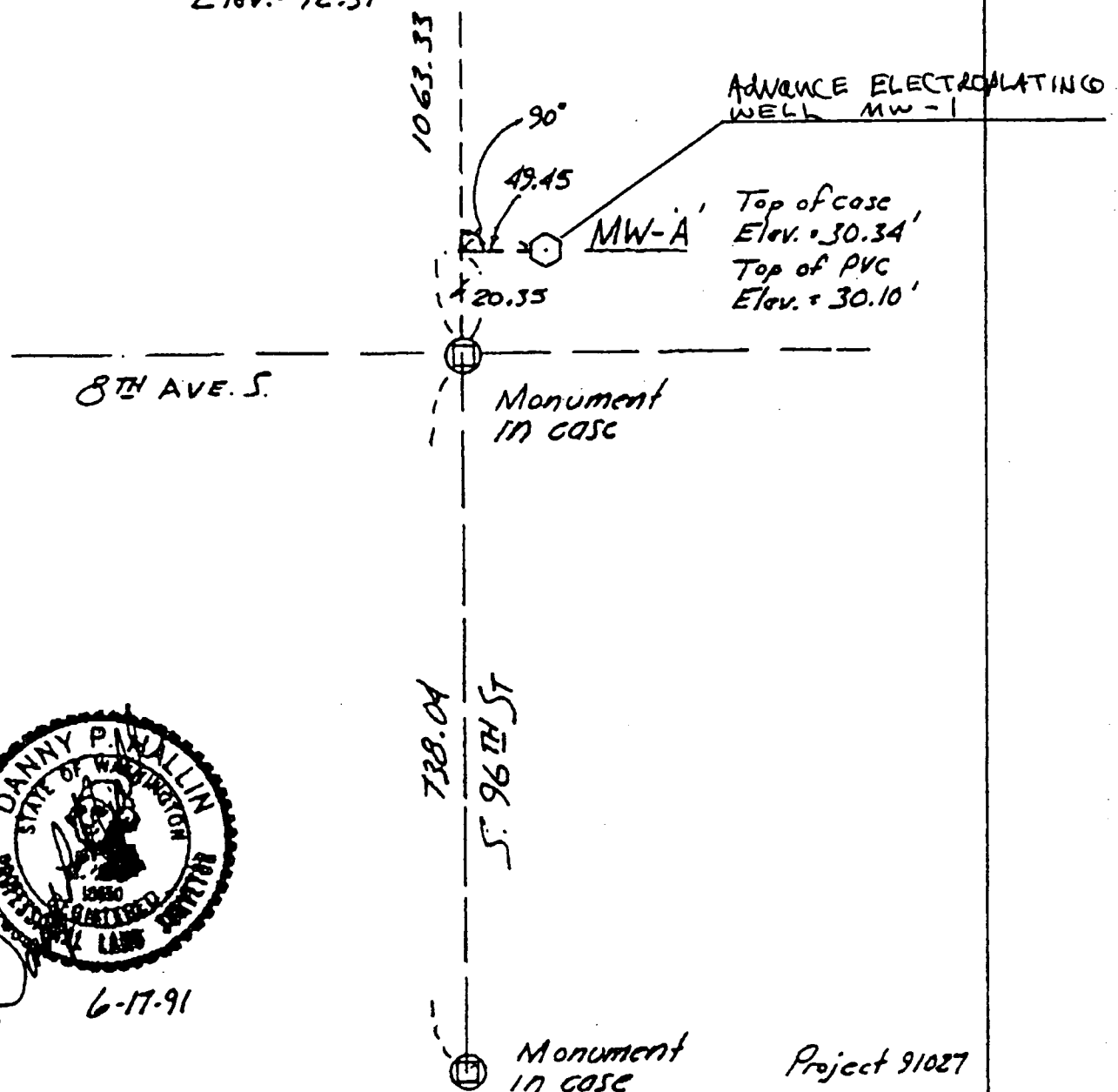
Seattle Wells

NOTE:

Vertical Datum =
MSL

115.52
MW-B'
Top of case
Elev. = 72.55'
Top of PVC
Elev. = 72.31


No Scale



6-17-91

MEMORANDUM

Date : May 23, 1991
To : William F. Kane, Parametrix Project Manager
From : Derral Van Winkle, SAIC Geophysicist

Subject : Work accomplished and preliminary interpretation of results at the Advanced Electroplating Site.

This memorandum discusses the geophysical survey that was completed by SAIC at the Department of Ecology Advanced Electroplating site and gives a preliminary interpretation of the results from results of the geophysical investigations.

Introduction

Reports indicate that drums containing unknown plating solutions may have been placed in a trench in the open field to the west of the Advanced Electroplating facility. The purpose of the geophysical surveys was to confirm or deny the presence of such a trench, and attempt to locate drum locations within this trench.

Survey Overview

Two geophysical surveys were completed at the site. A surface EM conductivity survey was conducted over a 70 by 210 ft (0.3 acre) grid. Figure 1 shows the gridded area. Measurements were collected at 10 ft corner grid points. Eight measurements were collected at each location: vertical and horizontal mode conductivity and in-phase measurements both parallel and perpendicular to the east-west survey lines. A total of 1408 measurements were collected. Collection of data in this manner gives the maximum coverage of the survey area, and gives an indication heterogeneous nature of the subsurface apparent conductivity. A magnetometer survey was conducted on a smaller grid within the 70 by 210 ft zone. This survey was focused using the surface EM conductivity survey to avoid the cultural effects of the nearby buildings and utilities as much as possible. Two readings were collected at each location in order to produce vertical gradient measurements which would be less susceptible to cultural effects. A total of 352 magnetic readings were collected. All data were stored within the instruments or data logging systems and downloaded to field computer. The data were preliminarily processed in the field to observe possible anomalous areas.

Preliminary Results

Four figures are included to show data results. Figures 2 through 4 show surface EM conductivity results while Figure 5 shows the gradiometer results. In general all three surveys show an anomalous area between approximately 30 to 170 ft north and 10 to 25 ft east. This anomalous pattern could be associated with the suspected trench in this field. The gradiometer data (Figure 5) also show a linear trend in this area with isolated areas where the vertical gradient of the magnetic field increases. These areas are concentrated around approximately 20 ft east 30 ft north, 20 ft east 70 ft north, 10 ft east 115 ft north, and 10 ft east 175 ft north. Figure 1 shows the interpreted anomalous area. It should be mentioned that these anomalies are non-unique, i.e., many combinations of materials and depths could cause the same pattern, so determining these anomalies as caused by drums without further work such as Ground Penetrating Radar or excavation is not possible.

Summary and Recommendations

Surface EM conductivity and magnetometer surveys were conducted at the Advanced Electroplating site on May 15 and 16, 1991. Readings were conducted on a 70 by 210 ft grid. One elongated anomaly pattern was detected on the west side of the gridded area. Many different objects could have caused these variations in the earth's magnetic field, so definitive determination of these anomalies having been caused by drums is not possible. However, something caused the anomalies and warrants further investigation if there is a high probability that drum burial occurred in this area.

cc: File
B. Morson (SAIC)

Figure 1. Area of Geophysical Surveys and Zone at the Advanced Electroplating site, Seattle, WA.

↑
North

Area of EM
Cond. Survey

9,310

7,320

Anomalous
Zone

Advanced Electroplating
Building

9,10

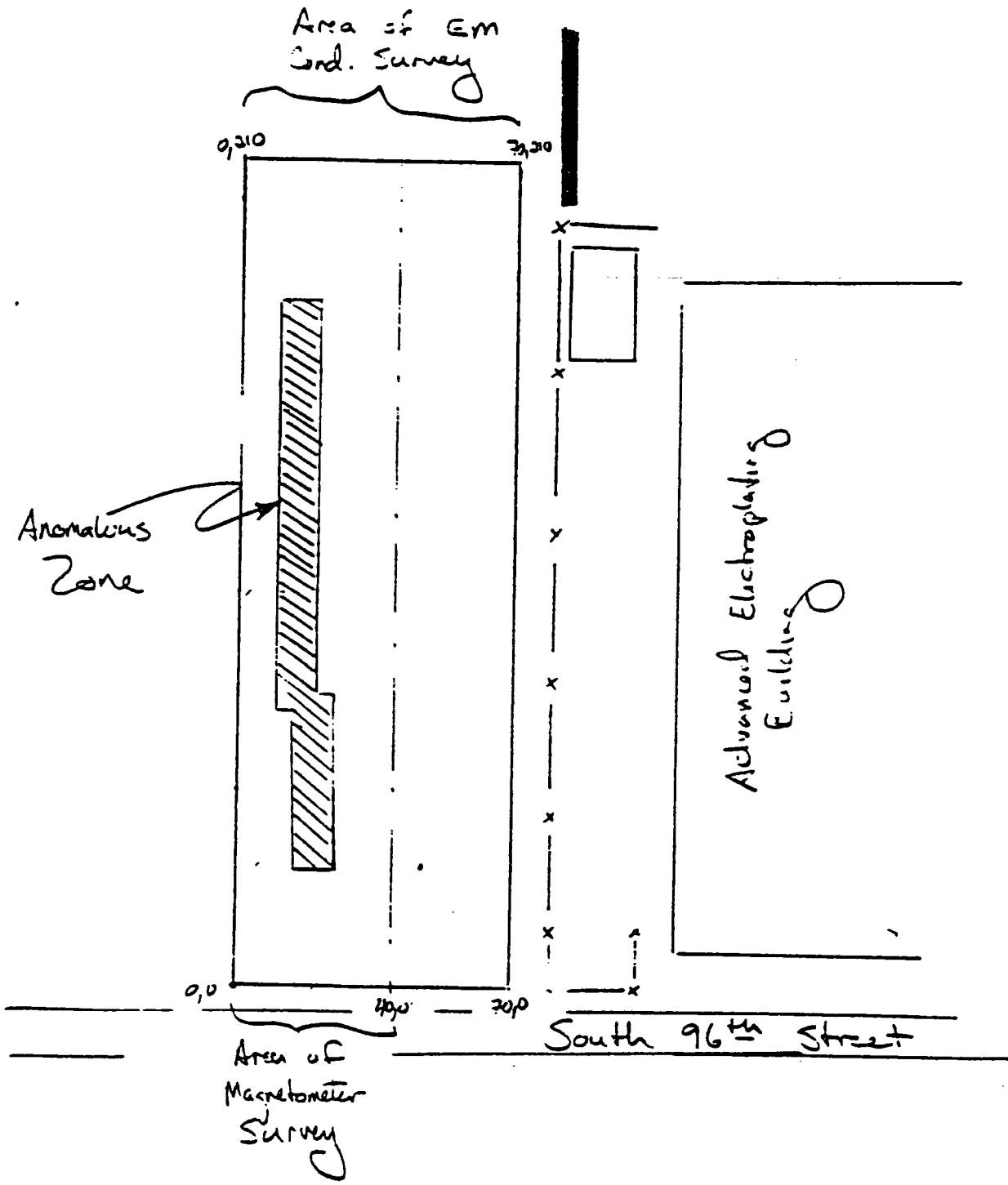
4,900

7,000

Area of
Magnetometer
Survey

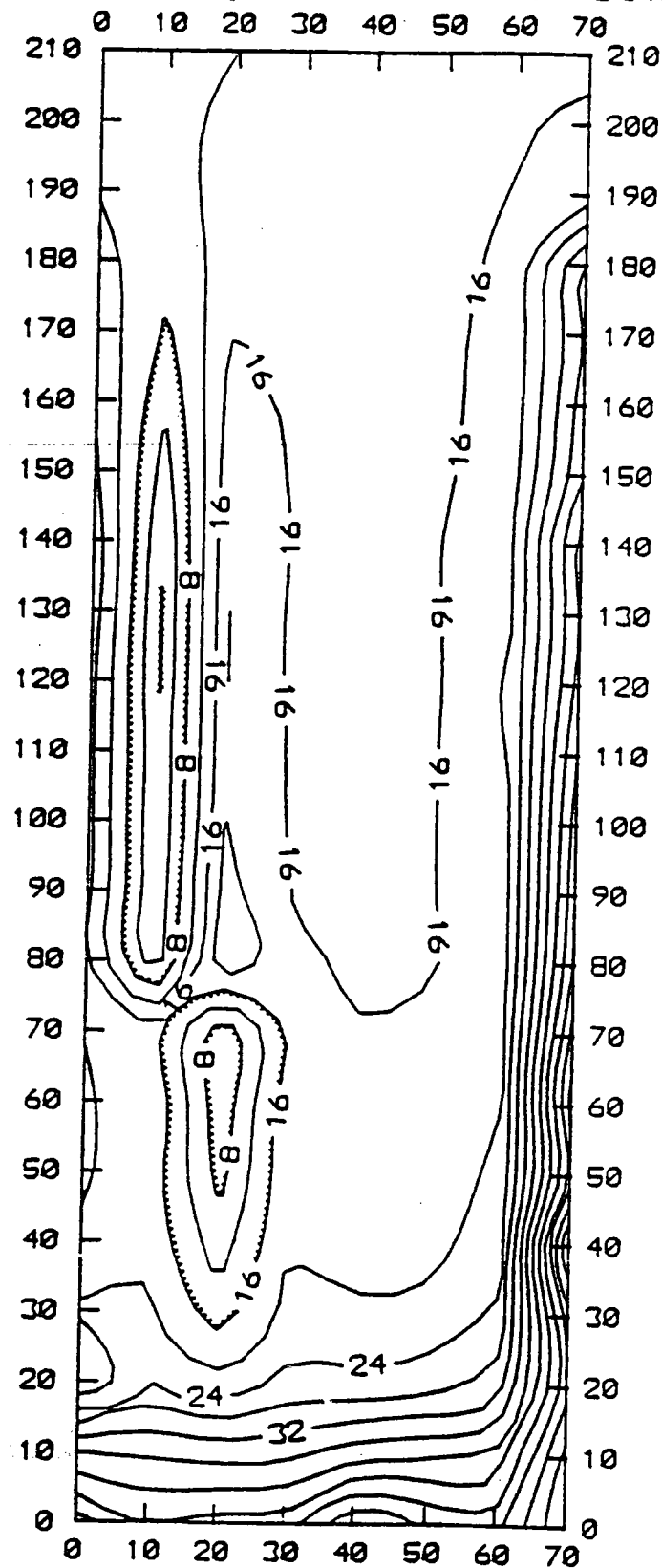
South 96th Street

30'
30'



ADVANCED ELECTROPLATING

Parallel Vertical Cond. Contours



ADVANCE ELECTROPLATING COMPANY, INC.
-Seattle, K.

WA-000172-4

CANCELLED 1982

INCLUDES OLD STATE
PERMIT #T-3496

MEMORANDUM

TO: File

FROM: T.J. McCann

SUBJECT: STAFF EVALUATION

Date: September 23, 1974

State of
Washington
Department
of Ecology



APPLICANT: ADVANCE ELECTROPLATING, INC. APPLICATION NO: WA-000172-4
9585 - 8th Avenue South
Seattle, Washington 98108

Activity or Production: Electroplating

Receiving Water: Storm ditch tributary to unnamed stream tributary to the Duwamish River near the Hammond-Schmitt Road in South Park.

Applicable Water Quality Standards: Class A

Background:

The applicant operates a metal finishing facility in an unsewered industrial area of unincorporated King County. Uncontaminated cooling water, boiler blowdown and partially treated rinse water from the plating processes are discharged to a storm ditch along South 96th Street. The discharge is regulated by a permit issued by the Water Pollution Control Commission.

The applicant wishes to expand the electroplating facilities because it is the primary job shop for the rapidly expanding Kenworth Truck Manufacturing plant. The DOE has resisted such expansions because of the lack of sanitary sewer service.

Sanitary sewer service is available to residences within the Seattle City limits several blocks to the north of this industrial park. The Rainer Vista interceptor to be constructed by Metro during 1975 will follow the West Marginal Way freeway to the east of this industrial park. The applicant and other industries have been requested to form a ULID to provide sanitary sewer service.

Evaluation:

The applicant should hire an engineer to design a treatment or pretreatment system, depending upon the availability of sanitary sewer service prior to June 30, 1977, for the contaminated rinse waters. Discharges to the storm ditch should be capable of meeting the requirements of a bioassay using salmon fingerlings.

STAFF EVALUATION
ADVANCE ELECTROPLATING, INC.

-2-

September 23, 1974

Recommendations:

1. A NPDES permit be issued that limits the concentration of heavy metals, cyanide, and oils with a time schedule to eliminate the discharge of pollutants.
2. The applicant and other polluting industries be ordered to form a ULID to construct a sanitary sewer collection system.

TJM:mk
9-23-74 dt

DEPARTMENT OF THE ARMY, CORPS OF ENGINEERS

APPLICATION FOR PERMIT TO DISCHARGE OR WORK IN NAVIGABLE WATERS AND THEIR TRIBUTARIES

071-0YB-2-000190

SECTION I. GENERAL INFORMATION

1. State <u>WN</u>	Application Number (to be assigned by Corps of Engineers) <u>071 0YB 2 000190</u>		
Div.	Dist.	Type	Sequence No.

2. Name of applicant and title of signing official

ADVANCE ELECTROPLATING INC
THOMAS O Presheigh PRESIDENT - GEN Mgr.

3. Mailing address of applicant

3 53-01190

ADVANCE ELECTROPLATING INC.
9585 8TH AVE SO
SEATTLE, WA 98108

4. Name, address, telephone number and title of applicant's authorized agent for permit application coordination and correspondence.

THOMAS O. Presheigh
9585 8TH AVE SO
Seattle, Wash 98108 206-762-2390

NOTE TO APPLICANT: Refer to the pamphlet entitled "Permits for Work and Structures in and for Discharges or Deposits into Navigable Waters" before attempting to complete this form.

Required Information

- All information contained in this application will, upon request, be made available to the public for inspection and copying. A separate sheet entitled "Confidential Answers" must be used to set out information which is considered by the applicant to constitute trade secrets or commercial or financial information of a confidential nature. The information must clearly indicate the item number to which it applies. Confidential treatment can be considered only for that information for which a specific written request of confidentiality has been made on the attached sheet. However, in no event will identification of the contents and frequency of a discharge be recognized as confidential or privileged information.
- The applicant shall furnish such supplementary information as is required by the District Engineer in order to evaluate fully an application.
- If additional space is needed for a complete response to any item on this form, attach a sheet entitled "Additional Information." Indicate on that sheet the item numbers to which answers apply.
- Drawings required by items 20 and 21 should be attached to this application. Other papers which must be attached to this application include, if applicable, copies of a water quality certification or a written communication which describes water quality impact (see Item 22 and Item 10 of Section II below), the additional information sheet(s) in "c" above, and the confidential information sheet described in "a" above.

Fees

If any discharge or deposit is involved, an application fee of \$100 must be submitted with this application. An additional \$50 is required for each additional point of discharge or deposit.

Signature

- If a discharge is involved, an application submitted by a corporation must be signed by the principal executive officer of that corporation or by an official of the rank of corporate vice president or above who reports directly to such principal executive officer and who has been designated by the principal executive officer to make such applications on behalf of the corporation. In the case of a partnership or a sole proprietorship, the application must be signed by a general partner or the proprietor. Other signature requirements are discussed in the pamphlet.
- If no discharge is involved, an application may be signed by the applicant or his authorized agent.

Application is hereby made for a permit or permits to authorize the activities described herein. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief such information is true, complete, and accurate.


Signature of Applicant

18 U.S.C. Section 1001 provides that:

Whoever, in any matter within the jurisdiction of any department or agency of the United States knowingly and wilfully falsifies, conceals or covers up by any trick, scheme, or device a material fact, or makes any false, fictitious or fraudulent statements or representations, or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than \$10,000 or imprisoned not more than five years, or both.

FOR CORPS OF ENGINEERS USE ONLY

Acronym name of applicant

Are discharge structures

Major? ☐ Minor? ☐ N/A? ☐

Date received, form not complete

Date received, form complete but without certificate

Date received, form complete

Date of Cert./Ltr.

Date sent to EPA, form not complete

Date sent to EPA, NOAA, D/I, AEC, FPC in complete form

day mo yr

6 21 11
mo day yr

(Office use only)
071-0YB-2-000190

6. Check type of application:

a. Original ☒ b. Revision ☐

7. Number of original application

8. Name of facility where discharge or construction will occur.

ADVANCE ELECTROPLATING

9. Full mailing address of facility named in item 8 above.

9585 8th Ave So
SEATTLE WA 98108

10. Names and mailing addresses of all adjoining property owners whose property also adjoins the waterway.

NA.

11. Check to indicate the nature of the proposed activity:

a. Dredging ☐ b. Construction ☐ c. Construction with Discharge ☐ d. Discharge only ☒

12. If activity is temporary in nature, estimate its duration in months.

If application is for a discharge:

13. List intake sources

Source	Estimated Volume in Million Gallons Per day or Fraction Thereof
Municipal or private water supply system	.105
Surface water body	
Ground water	
Other	

14. Describe water usage within the plant

Type	Estimated Volume in Million Gallons Per day or Fraction Thereof
Cooling water	.005
Boiler Feed water	.001
Process water	.098
Sanitary system*	.001
Other	

15. List volume of discharges or losses other than into navigable waters.

Type	Estimated Volume in Million Gallons Per day or Fraction Thereof
Municipal waste treatment system	
Surface containment	
Underground disposal	
Waste Acceptance firms	
Evaporation	.0002
Consumption	.0

* Indicate number employees served per day
35

3/21

If structures exist, or dredging, filling or other construction will occur, the precise location of the activity must be described.

(Office use only)

071-0YB-2-000190

- a. Name the corporate boundaries within which the structures exist or the activity will occur.

16. State WASHINGTON 17. County KING 18. City or Town South Park AREA

- b. Name of waterway at the location of the activity

19. Storm sewer which discharges to The Duwamish River WATERWAY

20. Maps and sketches which show the location and character of each structure or activity, including any and all outfall devices, dispersive devices, and non-structural points of discharge, must be attached to this application. See Enclosed #1.

21. For construction or work in navigable waters for which a separate permit is sought under 33 U.S.C. 403, the character of each structure must be fully shown on detailed plans to be submitted with this application. Note on the drawings those structures for which separate discharge information (Section II of this form) has been submitted.

22. List all approvals or denials granted by Federal, interstate, State or local agencies for any structures, construction, discharges or deposits described in this application.

Type of document	Id. No.	Date	Issuing Agency
WASTE DISCHARGE Permit	T-3496	11-18-70	STATE OF WASH. Dept. of Ecology

See enclosed copy #2

23. Check if facility existed or was lawfully under construction prior to April 3, 1970. ☒

24. If dredging or filling will occur:

NA.

State the type of materials involved, their volume in cubic yards, and the proposed method of measurement.

25. Describe the proposed method of instrumentation which will be used to measure the volume of any solids which may be deposited and to determine its effect upon the waterway.

NA

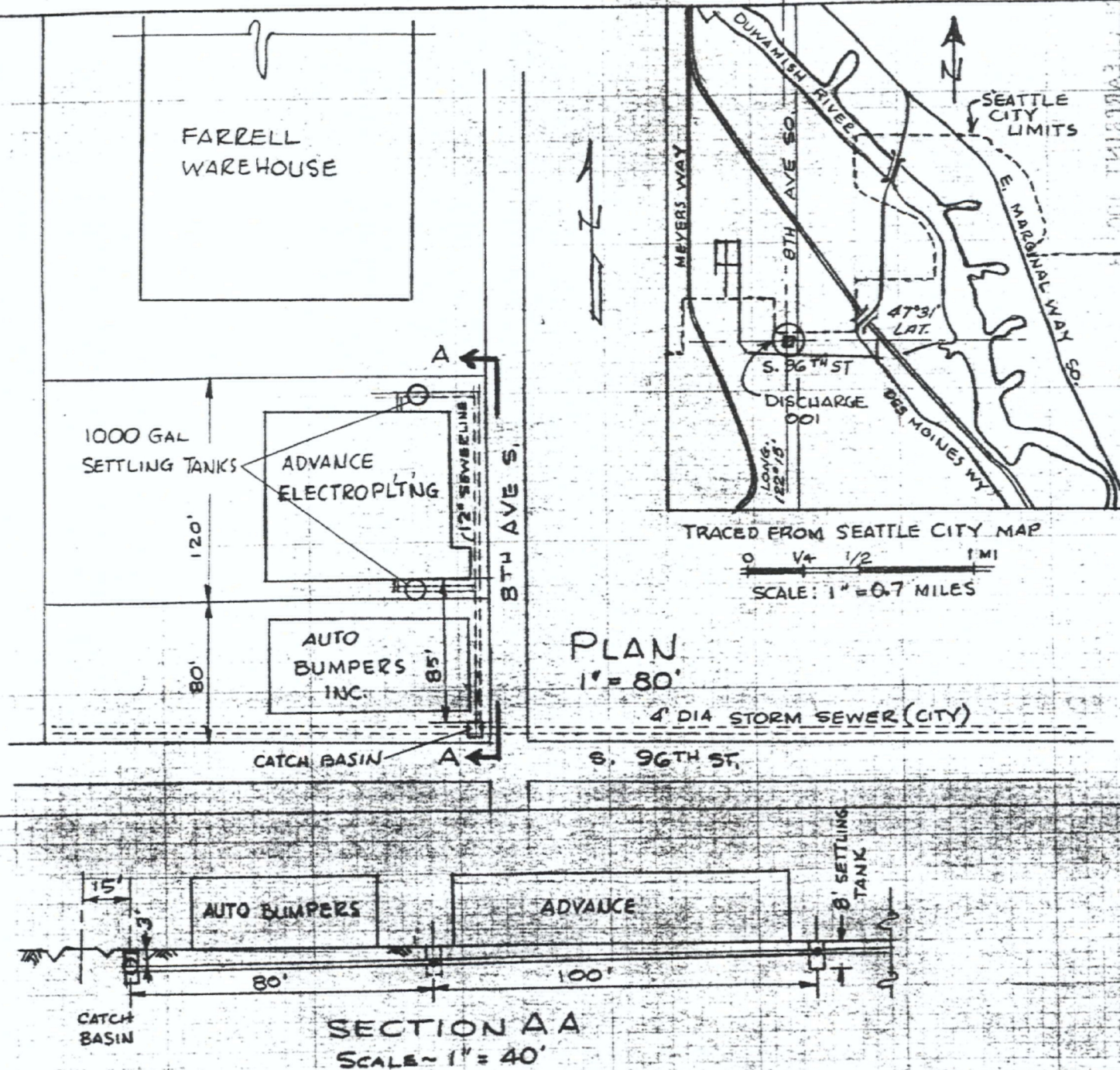
26. State rates and periods of deposition described in Item 25.

NA

4/21

MAR 2 1972

APPLICATION FOR EXISTING DISCHARGE



EXISTING DISCHARGE 001
INTO: STORM SEWER
AT: SEATTLE WA.
IN: KING COUNTY
BY: ADVANCE ELECTROPLATING
DATE JUNE 1971
REV DATE MARCH 1 1972
DWG: SHEET 1 OF 1

NO FEDERAL HARBOR LINES ESTABLISHED